

Amendments to the Specification:

Please replace paragraph [0001] with the following paragraph:

This application claims subject matter which is generally disclosed in co-pending U.S. Patent Application Serial No. 09/791,349 filed February 23, 2001, now U.S. Patent No. 6,518,686, in the names of Robert Campbell and Steve Bailey, entitled Brush Card Bushing Holder For Electric Motor.

Please replace paragraph [0016] with the following paragraph:

The lubricant recirculation member, or, oil slinger, according to the present invention is formed as a single piece thereby reducing the overall cost of providing the same functions as the three separate washers in prior art motors. Thus, in a single part, the lubricant recirculation member or oil slinger of the present invention provides the function of recirculating the bushing lubricant back into the bushing system, protects the commutator from lubricant contamination, provides a vibration dampening material layer between the commutator and the bearing or bushing, and provides a wear surface between the bushing and the lubricant recirculation portion of the oil slinger.

Please replace paragraph [0031] with the following paragraph:

The second end 18 of the housing 12 is provided with a plurality of longitudinally inward extending notches or recesses 28. ~~The purpose of the notches 28 will be described hereafter.~~ A plurality of bendable tabs 13 project outward from the second end 18.

Please replace paragraphs [0033] - [0035] with the following paragraphs:

The second end 18 of the housing 12 would normally be closed by a separate end plate, as in the prior art blower motor shown in Fig. 1. In the present invention, ~~the an~~ end plate, a second bushing retainer means and the holders for a plurality of brushes are integrated into a one-piece integral brush card bushing holder 30 which is shown in greater detail in Figs. 3 - 7.

The integral brush card bushing holder 30, hereafter referred to as the "holder 30", also functions as an end cap in that it is fixedly joined to and spans the second end 18 of the housing 12.

A commutator 40 is fixed to the shaft 24 adjacent to one end of the lamination stack 35 of the armature 34. At least two brushes 42 and 44 are disposed in a position to contact the commutator 40 as the armature 34, including the shaft 24, rotate. The brushes 42 and 44 are mounted in brush boxes 46 and 48, respectively, on the holder 30 as shown in Figs. 5 - 7. The holder 30 is formed of an integral, one-piece unitary member of a suitable insulating plastic, such as polybutylene terephthalate (PBT), polypropylene styrene (PPS), or polyphthalamide (PPA), for example, as well as thermoset plastics.

As shown in Figs. 5 - 7, the holder 30 has a generally planar array shape formed of three leg portions 50, 52, and 54 which are circumferentially spaced about a longitudinal axis through the center of the holder 30. Adjoining filler portions between two adjacent legs 50, 52, and 54 are filled in with continuous material in the same plane as the legs 50, 52, and 54. These filler portions 56 and 58 define platforms for the brush box carriers 46 and 48, respectively.

Please replace paragraphs [0037] - [0038] with the following paragraphs:

The sidewalls 60 and 62 of each brush 46 and 48 slidably receive one of the brushes 42 and 44. A spring, such as a constant force spring, ~~not shown~~ 43, is mounted at one end in a spring holder 68 formed on the filler portions 56 and 58 and is extendable into the interior of each brush box 46 and 48 where it wraps around the radially outer end of each brush 42 or 44 to normally bias the brushes 42 and 44 radially inward toward the longitudinal axis extending through the center of the holder 30 where the brushes 42 and 44 electrically engage the rotating commutator 40 on the shaft 24 as shown in Fig. 3.

As shown in Figs. 5 - 7, a central portion 70 of the holder 30 projects out of the plane of the legs 50, 52, and 54 and the filler portions 56 and 58 to form a necked down receptacle with a through aperture 72 at one end. As shown in Fig. 5, a plurality of longitudinally extending, circumferentially spaced ~~arms~~ fingers 74 project longitudinally from an end of the central portion 70, forming a mount for a bushing or bearing 78. Each ~~arm~~ finger 74

has an inward extending lip 76 at a longitudinal outer end. The lip 76 snaps around [a]the bushing or bearing 78 press fit into the interior of the circumferentially deployed fingers 74.

Please replace paragraphs [0041] - [0042] with the following paragraphs:

The second, or, vibration dampening portion, 84 of the oil slinger 80 is formed of a suitable vibration dampening material. The first and second portions 82 and 84 are preferably double molded together to form the integrated, one-piece oil slinger 80. The second portion 84 abuts the commutator 40.

More specifically, as shown in Figs. 8-15, the oil throw portion 82 of the oil slinger 80 is formed of a suitable wear resistant material as a wear surface of the oil throw portion 82 rotatably ~~engage~~ engages the bushing 78 during rotation of the motor shaft. For example, the oil throw portion 82 is formed of a molybdenum disulfide (~~MSO₂~~) (MSO₂) filled nylon 6,6 sold commercially under the trade name *NYLATRON*.

Please replace paragraphs [0044] - [0045] with the following paragraphs:

A concave shaped side wall 108 projects from the periphery of the base 100. The specific shape of at least the inner surface of the sidewall 108 can take any shape as long as it functions to form a pocket within the oil slinger 80 and to direct any lubricant excreted by the bushing 78 back toward the bushing 78 and away from the adjacent electrically conductive portions of the motor, such as the commutator 40. In a specific implementation, the side wall 108 has a generally inward angled inner surface formed of a first radially outward angled wall 110 and a contiguous radially inward extending end wall 112. The inner walls, 110 and 112 form an interior pocket between the wear surface 104 on the base 100 and the outer edge 114 of the end wall 112, which receives at least a portion of the second bushing 78 and the ~~arms~~ fingers 74 on the brush card holder as shown in ~~phantom~~ in Fig. 10.

A plurality of interior bores 116, with five interior bores 116 being shown by example, are disposed in a circumferential arrangement around the base 100 between the central bore 102 and the outer periphery of the side wall 108. Each bore 116 has a countersunk end

extending inward from the wear surface 104 as shown in Figs. 9 and 10. The inner surface of the countersunk portion 118 serves as a datum line for the material of the vibration dampening material portion 84 as described hereafter.

Please replace paragraph [0048] with the following paragraph:

The vibration dampening portion 84 also has a generally annular shape formed of a central wall 124 having a central bore 126 and an outer peripheral sidewall 128. The central bore ~~122~~ 126 includes a necked down end portion ~~128~~ which projects into the central bore ~~122~~ 102 in the oil throw portion 82 for a predetermined distance to a datum line 130. In addition, the plurality of posts 132 project from the central wall 124 into the bores ~~118~~ 116 to the datum line formed by the countersunk surface 118 in each bore 116 ~~and of~~ of the oil throw portion 82.

Please replace paragraphs [0050] - [0052] with the following paragraphs:

In assembling the entire oil slinger 80, the oil throw portion 82 is first molded to the shape shown in Figs. 9-15, either with the interlocking notch or recess 120 ~~and projection 122~~ in Figs. 10 and 11 or without the recess 120 ~~and projection 122~~ as shown in Figs. 12 and 13. The fully formed oil throw portion 82 is then inserted into a second mold where the vibration dampening portion ~~82~~ 84 is double molded into intimate, unitary mechanical interlocking contact with the oil throw portion 82. During this second molding operation, the ~~peripheral notched~~ projection 122 is formed in the recess 120, infused, and the ~~plugs posts~~ posts 132 are formed in the bores 116 to mechanically interlock the oil throw portion 82 to the vibration dampening portion 84.

An added wear feature of the present invention is shown in greater detail in Figs. 14 and 15. In this aspect of the invention, a plurality, such as three (3) equi-circumferentially spaced fingers 140, formed of the harder material of the oil throw portion 82 project inward over the inner edge of the necked portion ~~128~~ of the softer, more resilient material of the vibration dampening portion 84. The radially inner surface of the fingers 140 lies in coaxial alignment with the inner surface of the bore 126 through the central wall 124 of the ~~oil throw vibration dampening portion 82~~ oil throw vibration dampening portion 84 and ~~serve serves~~ to center the motor shaft 24 within the oil slinger 80.

At the same time, substantially all of the remaining inner surface of the bore 126 is formed of the resilient material of the vibration dampening portion 84 which acts as a seal to prevent lubricant from the bushing 78 from traveling along the shaft 24 into contact with the commutator 40.

In addition, during assembly where the shaft 24 is forced through the bore 126 of the oil slinger 80, the fingers 140 serve as stops to prevent or limit excessive stretching or movement of the radially innermost portions of the neck down portion ~~128~~ of the vibration dampening portion 84 ~~for moving~~ past the datum ~~surface~~ line 130.

Please replace paragraph [0054] with the following paragraph:

As shown in Fig. 2, the grommets 90 are sized to slide into ~~the~~ notches 28 formed ~~on the second end 18 of in~~ the motor housing 12. The grommets 90 therefore isolate any vibrations of the holder 30 and the bushing 78, shaft 24 and brushes 42 and 44 from the motor housing 12. ~~Tabs 13 formed on the second end 18 of the housing 12 can be bent over into fixed engagement with the holder 30 to fixedly retain the holder 30 within the second end 18 of the motor housing 12.~~

Please replace paragraphs [0057] - [0058] with the following paragraphs:

Next, the grommets 90 are aligned with ~~the~~ notches 28 ~~in the second end 18 of the~~ motor housing 12 and slidably inserted into the notches 28 until the grommets 90 bottom out on the inner closed end of the notches 28. ~~The tabs 13 are then bent over into fixed engagement with the holder 30 to securely retain the holder 30 within the motor housing 12.~~

In summary, there has been disclosed a unique lubricant recirculation member which combines in a single part diverse functions previously provided by a number of separate members requiring separate assembly steps and piece ~~part~~ parts. The lubricant recirculation member is formed as a one piece member of two joined, double molded portions which provide the required oil or lubricant recirculation feature, as well as a wear surface in contact with the bushing, and a vibration dampening layer between the bushing and the adjacent rotating commutator.